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PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS: CROSS-SECTORAL ISSUES

ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE-RELATED ISSUES[1]

Report of the Secretary General of the Conference

(Section II, Chapter 13 of Agenda 21)

INTRODUCTION

1. This document has been prepared by the Secretary-General of the Conference in response to the decision 3/23 of the Preparatory Committee taken on 4 September 1991, at its third session, as set out in document A/CONF.151/PC/WG.II/L.21/Rev.1. It is based on the guidance provided by the Preparatory Committee on the structure of Agenda 21, as contained in A/CONF.151/PC/L.49*. All text taken from PrepCom III L documents are to be found inserted between double asterisks (** < > **) with the reference to the specific A/CONF.151/PC/WG.II/L.19/Add.1/Rev.1 relevant paragraph number. When the text has been editorially modified, the double asterisks have been left out and the words "Derived from" have been inserted before the reference to paragraph numbers.

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2. The incorporation of the chapter on environmentally sound management of solid wastes within Agenda 21 is in response to operative paragraphs 3 and 12 of United Nations General Assembly resolution 44/228 which affirm that the Conference should elaborate strategies and measures to halt and reverse the effects of environmental degradation in the context of strengthening national and international efforts to promote, inter alia, environmentally sound management of wastes as a means of achieving sustainable and environmentally sound development of all countries.

3. Programme areas included under the present section and chapter of Agenda 21 are closely related to the following programme areas of other sections of Agenda 21:

a. Protection of the Quality and Supply of Fresh Water Resources (Section II, Chapter 10)

b. Promoting a Sustainable Pattern of Human Settlements (Section I, Chapter 7)

c. Protection of Human Health Conditions (Section I, Chapter 6)

d. Changing Consumption Patterns (Section 1, Chapter 4)

4. Solid wastes, as defined in this chapter, include domestic refuse, commercial and institutional wastes, street sweepings and construction debris. In some countries the solid wastes management system also handles human wastes such as nightsoil, septic tank sludge or sludge from sewage treatment plants. While it is possible that these municipal wastes will contain some industrial waste materials and discharges, the report assumes that hazardous wastes and toxic chemicals, which must be kept out of municipal sewers and landfills, will not form part of municipal solid wastes and sewage. Although this is not always a valid assumption it is important to gaining effective control over traditional forms of pollution. Defined thus, this chapter is concerned with the management of municipal solid wastes (MSW).

5. (Derived from p. 1, 2, 5) ‹ Environmentally sound waste management must go beyond the mere safe disposal of wastes that are generated and seek to address the root cause of the problem by attempting to change unsustainable patterns of production and consumption. This implies the application of the integrated life cycle management concept which presents a unique opportunity to reconcile development with environmental protection.

6. Acordingly, the framework for requisite action should be founded on a hierarchy of objectives and focused on the four major waste-related programme areas, as follows:

A. Minimizing wastes

B. Maximizing safe waste reuse[2]

C. Promoting safe waste disposal

D. Extending waste service coverage[3] ›

7. The four programmes are inter-related and mutually supportive and must, therefore, be integrated in order to provide a comprehensive and environmentally-responsive framework for managing municipal solid wastes. The mix and emphasis given to each of the four Programme areas will vary according to the local socio-economic and physical conditions, rates of waste generation and their composition.

PROGRAMME AREAS

A. MINIMIZING WASTES

Basis for action

8. ** (p. 7) ‹ Unsustainable patterns of production and consumption are increasing the quantities and variety of environmentally persistent wastes at unprecedented rates. The trend could double the quantities of wastes produced by the end of the century and increase quantities by between four and five fold by the year 2025. A preventive waste management approach focused on changes in life-styles and in production and consumption patterns offers the best chance for reversing current trends. › **

Objectives

9. (Derived from p. 8, 9) ‹

a. To stabilize or reduce the production of wastes destined for final disposal, over an agreed time frame, through the establishment of national urban and rural production rates based on waste weight, volume and composition.

b. To strengthen procedures for assessing waste quantity and composition changes and for making operational waste minimization policies through enhanced co-operation between countries and international organizations. ›

10. ** (p. 10) ‹ [Some targets of the programme could include:]

a. By [2000], ensure sufficient national, regional and international capacity to access, process and monitor waste trend information and implement waste minimization policies.

b. [By [2000] all industrialized countries should have in place programmes to stabilize per capita waste production of waste, destined for final disposal , at the level prevailing at those dates; developing countries should as well work towards the goal to stabilize their waste production rates, without jeopardizing their development prospects.]

c. [By [2025] produce annual periodic reviews with full global coverage.]

d. [By the year [2000] all countries, in particular industrialized countries, should apply programmes in order to reduce the production of agro-chemical wastes.] › **

Activities

Management-related:

11. Governments[4] and institutions and non-governmental organizations together with consumer groups, in collaboration with appropriate organizations of the United Nations should launch programmes, to achieve sustained action to minimize waste generation. These programmes should, wherever possible, build upon existing or planned activities and should:

a. Develop and strengthen national capacity in making waste minimization operational.

b. Review and reform relevant national policies to provide incentives to reduce unsustainable patterns of production and consumption.

c. Develop national plans to minimize waste generation as part of overall national development plans.

Data and Information:

12. (Derived from p. 11) ‹ Monitoring is a key prerequisite for keeping track of changes in waste quantity and quality and their resultant impact on health and the environment. The following specific activities should be undertaken to support monitoring, national governments, with the support of international agencies, should:

a. Develop and apply methodologies for country-level waste monitoring.

b. Undertake data gathering and analysis, establish national targets and monitor progress.

c. Utilize data to assess environmental soundness of national waste policies as a basis for corrective action.

d. Input information into global information systems. ›

International and Regional Co-operation and Co-ordination:

13. The United Nations and intergovernmental organizations, with the collaboration of governments, should help promote waste minimization by facilitating the greater exchange of information, know-how and experience. The following is a non-exhaustive list of specific activities that could be undertaken:

a. Identify, develop and harmonize methodologies for waste monitoring and transfer such methodologies to countries.

b. (Derived from p. 13 f) ‹ Identify and further develop the activities of existing information networks on clean technologies and waste minimization. ›

c. (Derived from p. 11 c) ‹ Undertake periodic assessment, collate and analyze country data and report systematically to the countries concerned in an appropriate United Nations forum. ›

d. (Derived from p. 12 a) ‹ Review effectiveness of all waste minimization instruments, and identify potential new instruments that could be used and techniques by which they could be made operational at the country level. Guidelines and codes of practice should be developed. ›

e. Undertake research on the social and economic impacts of waste minimization at the consumer level.

Means of Implementation

Financial and Cost Evaluation:

14. It is suggested that industrialized countries invest one per cent of the total annual solid wastes and sewage derived revenues toward waste minimization. At current levels this would amount to about US$ 6.5 billion annually, of which US$ 1.8 billion is required for minimizing municipal solid wastes.

Scientific and Technological Means:

15. (Derived from p. 12 a, b, c, d, e) ‹ For waste minimization technologies and procedures will need to be identified and widely disseminated. This work should be co-ordinated by national governments with the co-operation and collaboration of non-governmental organizations, research institutions and appropriate organizations of the United Nations and include the following:

a. Undertake a continuous review of the effectiveness of all waste minimization instruments, and identify potential new instruments that could be used and techniques by which instruments could be made operational at the country level. Guidelines and codes of practice should be developed.

b. Promote waste prevention and minimization as the principal objective of national waste management programmes.

c. Promote public education and a range of regulatory and non-regulatory incentives to encourage industry to change product design and reduce industrial process wastes through cleaner production technologies and good housekeeping practices and encourage industries and consumers to use types of packaging that can be re-used, in particular refillable and recyclable packaging.

d. Execute, in accordance with national capacities, demonstration and pilot programmes to optimize waste minimization instruments.

e. Establish procedures for adequate transport, storage conservation and management of agricultural products, food stuffs and other perishable goods in order to reduce loss of these products, which results in the production of solid waste. ›

f. (Derived from p. 14 h) ‹ [Facilitate the transfer of waste reduction technologies to industry and establish concrete national targets for effluents and solid waste and for raw material use and energy consumption.] ›

Human Resources Development:

16. Human resources development for waste minimization should be targeted not only at professionals in the waste management sector but also seek to obtain the support of citizens and industry. Human resources development programmes must, therefore, aim to raise consciousness, educate, and inform concerned groups.

(Derived from p. 13) ‹ Countries should:

Incorporate within school curricula the principles and practices of preventing and minimizing wastes and the environmental impacts of waste. ›

B. MAXIMIZING SAFE WASTE REUSE[2]

Basis for action

17. ** (WG.II/L.19/Add.1/Rev.1, p. 15) ‹ The exhaustion of traditional disposal sites, stricter environmental controls governing waste disposal, and increasing quantities of more persistent wastes have all contributed to a rapid increase in the cost of waste disposal services. Costs could double or triple by the end of the decade. Current disposal practices pose a threat to the environment. As the economics of waste disposal services change, waste recycling and resource recovery are becoming increasingly cost-effective. Future waste management programmes should take maximum advantage of resource-efficient approaches to management. › **

Objectives

18. (Derived from p. 16, 17, 18) ‹ To strengthen and increase national waste recycling systems.

19. To create a model internal waste recycling programme for waste streams including paper within the United Nations System.

20. To make available information, techniques and appropriate policy instruments to encourage and make operational waste recycling schemes. ›

** (p. 19) ‹ [Some targets of the programme could include:]

a. [By [2000] [ensure]/[promote] sufficient [financial and technological capacities at the regional, national and local levels] national and local regional capacity to implement waste recycling policies and actions.]

b. By [2010] all industrialized countries and by [2010] all developing countries should have a national programme including to the extent possible [concrete] targets for efficient waste recycling. › **

Activities

Management-related:

21. National governments and institutions and non-governmental organizations together with consumer, women, and youth groups, in collaboration with appropriate organizations of the United Nations, should launch programmes to demonstrate and make operational enhanced waste recycling. These programmes should, wherever possible, build upon existing or planned activities and should:

a. Develop and strengthen national capacity to recycle an increasing proportion of wastes.

b. Review and reform national waste policies to provide incentives for waste recycling.

c. Develop and implement national plans for waste management that take advantage of, and give priority to, waste recycling.

Data and Information:

22. (Derived from p. 20) ‹ Information and research is required to identify promising socially-acceptable and cost-effective forms of waste recycling relevant to each country. For example, supporting activities undertaken by national and local governments in collaboration with the United Nations and other international organizations should include:

a. Undertake an extensive review of options and techniques for recycling all forms of municipal solid wastes. Policies for recycling should be made an integral component of national and local waste management programmes.

b. Assess the extent and practice of waste recycling operations currently undertaken and identify ways by which these could be increased and supported.

c. Increase funding for research pilot programmes to test various options for recycling, including the use of small-scale, cottage-based recycling industries; compost production; treated wastewater irrigation; and energy recovery from wastes.

d. Produce guidelines and best practices for waste recycling.

e. Intensify efforts, at collecting, analyzing and disseminating, to key target groups, relevant information on waste issues. Special research grants could be made available on a competitive basis for innovative research projects on recycling techniques. ›

International and Regional Co-operation and Co-ordination:

23. The international support agencies in general, and appropriate United Nations organizations, in particular, should cooperate with governments

in generating the necessary information and providing the necessary stimulus for encouraging waste recycling in countries. In particular, the international community should:

a. Undertake in cooperation with national governments a periodic review of the extent to which countries recycle their wastes.

b. Review the effectiveness of techniques and approaches to waste recycling and ways of enhancing their application in countries.

c. Review and update international guidelines for the safe reuse of wastes

Means of Implementation

Financial and Cost Evaluation:

24. If all countries devote one per cent of waste related municipal revenues to safe waste reuse schemes at current rates it would mean annual worldwide expenditures of about US$ 8 billion of which US$ 2,3 billion would be required exclusively for reutilizing solid wastes. It is proposed that the international community should direct US$ 0,85 billion to accelerate safe waste reuse in developing countries, of which US$ 0,25 billion relates to solid wastes.

25. It is proposed to increase funding to international organizations to enable them to support these efforts by about US$ 5 million annually. Half of this relates to solid wastes.

Scientific and Technological Means:

26. (Derived from p. 22) ‹ The transfer of technologies should support waste recycling and reuse:

a. Include the transfer of recycling technologies, such as machinery for reusing plastics, within bilateral and multilateral technical co-operation and aid programmes.

b. Develop and improve existing technologies, especially indigenous technologies, and facilitate their transfer under on-going regional and inter-regional technical assistance programmes.

c. [Facilitate technology transfer for waste recycling by exempting such technologies from import taxes and other restrictions.] ›

27. ** (p. 21) ‹ Incentives for waste recycling are numerous. Countries could consider the following options to encourage industry, institutions, commercial establishments and individuals to recycle wastes instead of disposing of them:

a. Offer incentives to local and municipal authorities that recycle the maximum proportion of their wastes.

b. Provide technical assistance to informal waste recycling operations.

c. Apply economic and regulatory instruments, including tax incentives to support the principle that generators of wastes pay for their disposal.

d. Provide legal and economic conditions conducive to investments in waste recycling.

e. Implement specific mechanisms such as deposit/refund systems as incentives for recycling.

f. Promote the separate collection of recyclable parts of household wastes.

g. Provide incentives to improve the marketability of technically recyclable waste.

h. Encourage the use of recyclable materials, particularly in packaging, where feasible.

i. Encourage the development of markets for recycled goods by establishing programmes. › **

Human Resources Development:

28. (Derived from p. 23) ‹ Training will be required to reorient current waste management practices to include waste recycling. Governments, in collaboration with United Nations international and regional organizations should undertake the following indicative list of actions:

a. Include waste recycling in in-service training programmes as integral components of technical co-operation programmes on urban management and infrastructure development.

b. Expand training programmes on water supply and sanitation to incorporate techniques and policies for waste recycling.

c. Include the advantages and civic obligations associated with waste recycling in school curricula and relevant general educational courses.

d. Establish NGOs, community-based organizations, women, youth and public interest group programmes in collaboration with local municipal authorities to mobilize community support for waste recycling through focused community-level campaigns. ›

Capacity Building:

29. (Derived from p. 24) ‹ Capacity building to support increased waste recycling should focus on the following areas:

a. Make operational national policies and incentives for waste management.

b. Enable local and municipal authorities to mobilize community support for waste recycling by involving and assisting informal sector waste recycling operations and undertaking waste management planning which incorporates resource recovery practices. ›

C. PROMOTING SAFE WASTE DISPOSAL

Basis for action

30. ** (p. 25) ‹ Even when wastes are minimized, some wastes will still remain. Even after treatment, all discharges of wastes have some residual impact on the receiving environment. Consequently, there is scope for improving waste treatment and disposal practices such as, for example, avoiding the discharge of sludges at sea. In developing countries the problem is of a more fundamental nature: less than 10 percent of urban wastes receive any form of treatment and only a small proportion of treatment is in compliance with any acceptable quality standard. Faecal matter treatment and disposal should be accorded due priority given its potential threat to human health. › **

Objectives

31. (Derived from p. 26, 27) To treat and dispose safely a progressively increasing proportion of the generated wastes.

[Some targets of the programme could include]/[Policies could include]:

a. By [2000] all countries should establish waste treatment and disposal quality criteria, objectives and standards based on the nature and assimilative capacity of the receiving environment.

b. By [2000] countries should establish sufficient capacity to undertake waste-related pollution impact monitoring and conduct regular surveillance [including epidemiological surveillance].

c. By [1995], industrialized countries and by [2000] developing countries should ensure that at least 50 percent of all sewage, wastewaters and solid wastes are treated or disposed of [in conformity with environmental and health quality criteria].

d. By [2025] countries should dispose of all sewage, wastewaters and solid wastes [in conformity with internationally agreed and accepted environmental quality guidelines.] ›

Activities

Management-related:

32. National governments and institutions and non-governmental organizations together with industries, in collaboration with appropriate organizations of the United Nations should launch programmes in all parts of the world to improve the control and management of waste-related pollution. These programmes should, wherever possible, build upon existing or planned activities and should:

a. Develop and strengthen national capacity to treat and safely dispose of wastes.

b. Review and reform national waste management policies to gain control over waste-related pollution.

c. (** p. 29 a) ‹ [Each and every state should provide an environmentally sound solution, for the wastes it produces within its own territory, without it being acceptable to be exported to third countries or disposing it in areas, which are not subject to state sovereignty]. › **

d. (Derived from p. 29 g) ‹ [Develop human wastes management plans giving due attention to the development and application of appropriate technologies and the availability of resources for implementation]. ›

Data and Information

33. (Derived from p. 28) ‹ Standard setting and monitoring are two key elements essential for gaining control over waste-related pollution. The following specific activities are indicative of the kind of supportive actions that could be taken by international agencies such as UNCHS (Habitat), UNEP and WHO.

a. Assemble and analyze the scientific evidence and pollution impacts of wastes in the environment in order to formulate and disseminate recommended international scientific criteria and guidelines for environmentally sound management of solid wastes.

b. Establish national and, where relevant, local environmental quality standards based on international scientific criteria and guidelines.

c. Include within technical co-operation programmes and agreements the provision for monitoring equipment and requisite training for its use. ›

d. (Derived from p. 30 a) ‹ [Establish an information clearing house activities with extensive networks at the regional, national and local levels to collect and disseminate information on all aspects of waste management, including safe disposal]. ›

International and regional co-operation and co-ordination:

34. The international community, as a whole, and especially appropriate United Nations organizations such as UNCHS (Habitat), UNEP, WHO and UNIDO and professional associations, should generate the necessary information and provide the necessary stimulus for encouraging the treatment and safe disposal of wastes in all countries. In particular, the international community should:

a. Identify, develop and harmonize methodologies and environmental quality and health guidelines for safe waste discharge and disposal.

b. Review, keep abreast of developments and disseminate information on the effectiveness of techniques and approaches to safe waste disposal and ways of supporting their application in countries.

Means of Implementation

Financial and Cost Evaluation:

35. Safe waste disposal programmes are relevant to both developed and developing countries. In developed countries the focus is on improving facilities to meet higher environmental quality criteria, while in developing countries considerable investment is required to build new treatment facilities.

36. Safe waste disposal programmes require a total annual investment in developing countries of US$ 15.1 billion of which US$ 2.7 billion is required exclusively for the safe disposal of solid wastes. If the international community provided one-third of this amount this would require about US$ 3,4 billion annually of which about US$ 1 billion relates to solid wastes.

37. About US$ 5 million annually would be required to strengthen the capacity of international organizations to support these efforts. Half of this relates to solid wastes.

Scientific and Technological Means:

38. (Derived from p. 30 b, c) ‹ Scientific guidelines and research on various aspects of waste-related pollution control will be crucial for achieving the objectives of this programme. Governments, municipalities and local authorities with appropriate international co-operation should:

a. Prepare guidelines and technical reports on subjects such as the integration of human settlements land use planning with waste disposal; environmental quality criteria and standards; waste treatment and safe disposal options; industrial waste treatment; and landfill operations.

b. Undertake research on critical subjects such as low-cost, low-maintenance wastewater treatment systems, safe sludge disposal options, industrial waste treatment and low ecologically-safe waste disposal technologies. These should be supported by the international donor community. ›

c. Transfer technologies on industrial waste treatment processes through transnational corporations and bilateral and multilateral technical co-operation programmes.

d. (Derived from p. 29 e, f) ‹ Focus, [as a first priority], on the rehabilitation, operation and maintenance of existing facilities and [concentrate] technical assistance on improved maintenance practices and techniques; followed by the planning and construction of waste treatment facilities.

e. [Establish programmes to ensure the source segregation and safe disposal of the hazardous components of municipal solid waste]. ›

f. Ensure the concomitant investment and provision of waste collection facilities with the provision of water services and an equal parallel investment and provision of waste treatment facilities.

Human Resources Development:

39. Training would be required to reorient current waste management practices to include safe collection and waste disposal. The following is an indicative list of actions that should be undertaken by Governments in collaboration with international agencies:

a. (Derived from p. 29 d) ‹ Provide both formal and in-service training focused on pollution control, waste treatment and disposal technologies, and operations and maintenance of waste-related infrastructure. Inter-country staff exchange programmes should also be established. ›

b. Undertake requisite training on waste-related pollution monitoring and control enforcement.

Capacity Building:

40. (Derived from p. 29 b, c) ‹ Institutional reforms and capacity building will be indispensable if countries are to be able to quantify and mitigate waste-related pollution. Activities to achieve this objective should include:

a. Create and strengthen independent environmental control bodies at national and local levels. International organizations and donors should support needed manpower skill upgrading and provision of equipment.

b. Empower pollution control agencies with the requisite legal mandate and financial capacities to carry out their duties effectively. ›

D. EXTENDING WASTE SERVICE COVERAGE[3]

Basis for Action

41. (Derived from p. 32) ‹ By the end of the century over 2.0 billion people will be without access to basic sanitation, and an estimated half of the urban population in developing countries will be without adequate solid waste disposal services. As many as 5.2 million people, including 4 million children under 5 year of age die each year from waste-related diseases. The health impacts are particularly severe for the urban poor. The health and environmental impacts of inadequate waste management, however, go beyond the unserved settlements themselves and result in water, land and air contamination and pollution over a wider area. Extending and improving waste collection and safe disposal services are crucial to gaining control over this form of pollution. ›

Objectives

42. (Derived from p. 33) ‹ The overall objective of this programme is to provide health-protecting, environmentally-safe waste collection and disposal services to all people. Specific supportive objectives should be:

a. By [2000] all countries should have necessary technical, financial and human-resource capacity to ensure the provision of waste collection services commensurate with needs;

b. By [2025] all urban populations should be provided adequate waste services;

c. By [2050] full urban waste service coverage should be maintained and full rural coverage with sanitation achieved. ›

Activities

Management-related:

43. (Derived from p. 37 d) ‹ [Considerable financial and technical co-operation will be required to increase coverage. National governments, in collaboration with the United Nations, relevant international organizations and multilateral financial institutions could undertake many activities of which the following are a sample:

a. Establish financing mechanisms for waste management service development in deprived areas including appropriate modes of revenue generation.

b. Apply polluter pays principle by setting waste management charges at rates that reflect the true economic costs of providing the service and ensure that those that generate the wastes pay the full cost of disposal in an environmentally safe way.

c. Institutionalize participatory planning and implementation procedures that involve communities, especially women.] ›

Data and Information:

44. Governments in collaboration with the United Nations and international agencies should undertake the following:

a. Develop and apply methodologies for country-level waste monitoring.

b. Undertake data gathering and analysis to establish national targets and monitor progress.

c. Input information into a global information system building upon existing systems.

d. Strengthen the activities of existing information networks to disseminate focused information on the application of innovative and low-cost alternatives for waste disposal to targeted audiences.

International and regional co-operation and co-ordination:

45. Many United Nations and bilateral programmes exist which seek to provide water supply and sanitation services to the unserved. The Water Supply and Sanitation Collaborative Council Global Forum currently acts to co-ordinate development and encourage co-operation. Even so, given the ever increasing numbers of unserved urban poor populations and the need to address, in addition, the problem of solid waste disposal, additional mechanisms are essential to ensure accelerated coverage of urban waste disposal services. The international community, in general, and select United Nations Organizations in particular, should:

a. (Derived from p. 38 c) ‹ Launch a Settlement Infrastructure and Environment Programme following the Conference to co-ordinate the activities of all United Nations agencies involved in this area and include a clearing house for information dissemination on all waste management issues. ›

b. Undertake and systematically report on progress in providing waste services to those without.

c. Review effectiveness of techniques and approaches to increasing coverage and identify innovative ways of accelerating the process.

Means of Implementation

Financial and Evaluation:

46. Extending waste service coverage to unserved populations is relevant mainly to developing countries. A total annual investment for extending waste service coverage in accordance with the schedule indicated in programme objectives is estimated at US$ 7.5 billion of which US$ 1.6 billion pertains to solid waste service expansion. Assuming one- third of these costs were financed by the international community, the concessional assistance requirements would be about US$ 2,6 billion of which US$ 0,6 billion relates to solid wastes services.

47. About US$ 8 million annually will be needed to strengthen international organizations capacity to support these efforts. Half of this relates to solid wastes.

Scientific and Technological Means:

48. National governments and institutions and non-governmental organizations together in collaboration with appropriate organizations of the United Nations should launch programmes in different parts of the developing world to extend waste services to the unserved populations. These programmes should, wherever possible, build upon and reorient existing or planned activities.

49. (Derived from p. 36, 37 a) ‹ [Policy changes at the national and local levels could enhance the rate of waste service coverage extension. These should include the following:

a. Give full recognition and use the full range of low-cost options for waste management including where appropriate their institutionalization and incorporation within codes of practice and regulation.

b. Assign high priority to the extension of waste management services to all settlements irrespective of their legal status giving due emphasis to meeting the waste disposal needs of the unserved, especially, the unserved urban poor.

c. Integrate the provision and maintenance of waste management services with other basic services such as water supply and stormwater drainage.] ›

50. (Derived from p. 38 a, b, d) ‹ Research activities could be enhanced. Countries, in co-operation with appropriate international organizations and NGOs should, for instance:

a. Find solutions and equipment for managing wastes in areas of concentrated populations. In particular, there is a need for appropriate refuse storage and collection systems and cost-effective and hygienic human waste disposal options.

b. Prepare and disseminate guidelines, case studies, policy reviews and technical reports on appropriate solutions and modes of service delivery to unserved low-income areas.

c. Launch campaigns to encourage active community participation involving women and youth groups in waste management, particularly, household waste. ›

d. (Derived from p. 37 e) ‹ Undertake inter-country transfer of relevant technologies, especially technologies for high density settlements.] ›

Human Resources Development

51. (Derived from p. 39, 40) ‹ International organizations, national and local governments in collaboration with NGOs, should provide focused training on low-cost waste collection and disposal options and, particularly, techniques for their planning and delivery. Inter-country staff exchange programmes among developing countries could form part of such training. › Particular attention should be given to upgrading the status and skills of management-level personnel in waste management agencies.

52. (Derived from p. 40) ‹ Improvements in management techniques are likely to yield the greatest returns in terms of improving waste management service efficiency. The United Nations, international organizations and financial institutions should in collaboration with national and local governments, develop and make operational management information systems (MIS) for municipal record keeping and accounting and for efficiency and effectiveness assessment. ›

Capacity Building:

53. National governments and institutions and non-governmental organizations, with the collaboration of appropriate organizations of the United Nations should develop capacities to implement programmes to provide waste collection and disposal services to the unserved populations. Some activities under the programme include the following:

a. Establish a special unit within current institutional arrangements to plan and deliver services to the unserved poor communities with their involvement and participation.

b. Make revisions to existing codes and regulations to permit the use of the full range of low-cost alternative technologies for waste disposal.

c. Build institutional capacity and procedures to undertake service planning and delivery.

EXPLANATORY NOTES

1. Sewage-related issues contained in this document presently overlap with others identified under Programme Area D - Drinking Water Supply and Sanitation and Programme Area E - Water and Sustainable Urban Development of Chapter 10 - Protection of the Quality and Supply of Freshwater Resources of Agenda 21. Sewage-related activities presented here must therefore, be seen together with those contained under the chapter on freshwater. For purposes of avoiding duplication , all sewage-related costings have been reflected under the chapter on freshwater.

2. Programme title "MAXIMIZING WASTE REUSE" has been changed to "MAXIMIZING SAFE WASTE REUSE".

3. Programme title "EXTENDING WASTE DISPOSAL SERVICE COVERAGE" has been changed to "EXTENDING WASTE SERVICE COVERAGE".

4. [Throughout this document "Governments" also refers to the European Community acting in the sphere of its competence.]